

CLAIMS:

1. A low weight cushion backed flooring such as a floor covering, carpet, or carpet tile, comprising a low face weight primary carpet and a light weight cushion attached to the back of the primary carpet.
2. The flooring as recited in claim 1, wherein the low face weight is less than about 20 oz/yd².
3. The flooring as recited in claim 2, wherein the low face weight is less than or equal to about 15 oz/yd².
4. The flooring as recited as recited in claim 1, further comprising a hot melt layer between said primary carpet and said light weight cushion.
5. The flooring as recited as recited in claim 4, wherein the hot melt layer is less than or equal to about 50 oz/yd².
6. The flooring as recited in claim 5, wherein the hot melt layer is about 36 – 50 oz/yd².
7. The flooring as recited as recited in claim 4, further comprising a reinforcing material in said hot melt layer.
8. The flooring as recited as recited in claim 1, wherein the lightweight cushion is about 0.04 – 0.12 inches thick.

8. The flooring as recited as recited in claim 1, wherein the lightweight cushion is about 0.04 – 0.12 inches thick.

9. The flooring as recited as recited in claim 8, wherein said lightweight cushion is about 0.04 – 0.09 inches thick.

10. The flooring as recited as recited in claim 1, wherein the lightweight cushion has a polymer weight of less than about 15 oz/yd².

11. The flooring as recited as recited in claim 10, wherein said lightweight cushion has a polymer weight of about 4.32 – 12.96 oz/yd².

12. The flooring as recited in claim 11, wherein said lightweight cushion is a polyurethane foam having about 110 parts of filler by weight.

13. The flooring as recited as recited in claim 1, wherein the lightweight cushion has a polymer weight of about 2.72 – 8.24 oz/yd².

14. The flooring as recited as recited in claim 13, wherein said lightweight cushion is a polyurethane foam with about 190 parts of filler by weight.

15. The flooring as recited as recited in claim 1, wherein the lightweight cushion is an unfilled polyurethane (Prime urethane).

16. The flooring as recited in claim 15, wherein said lightweight cushion has a density of about 6 lbs./per cubic foot and a polymer weight of about 2.88 – 8.64 oz/yd².

5 17. The flooring as recited as recited in claim 1, wherein the lightweight cushion has a density of about 6 -- 9 lb./cu. ft.

18. The flooring as restricted in claim 17, wherein said lightweight cushion is a polyurethane system with about 15 parts of filler material by weight and a polymer weight of about 4.30 – 13.02 oz/yd².

10 19. The flooring as recited as recited in claim 1, wherein said lightweight cushion is at least one of a polyurethane foam and a water based foam system.

15 20. The flooring as recited as recited in claim 1, wherein the lightweight cushion has a density of less than or equal to 20 lbs. per cubic foot.

21. The flooring as recited in claim 20, wherein the cushion density is between about 14 – 18 lbs. per cubic foot.

20 22. The flooring as recited in claim 21, wherein the cushion density is about 16 lbs. per cubic foot.

23. The flooring as recited as recited in claim 1, having resilience and under foot comfort.

24. The flooring as recited in claim 23, having a Gmax test result of less than 130.
25. The flooring as recited in claim 23, having a resilience rating of greater than 25.
- 5 26. The flooring as recited as recited in claim 1, exhibiting performance characteristics that rate it for heavy commercial[↑] use.
27. ~~The~~ flooring as recited in claim 23, having an Appearance Retention Rating (ARR) of at least 3.5 long term and at least 4.0 short term.
- 10 28. The flooring as recited in claim 26, having a Hexapod test color change test result of only slight or moderate color change.
29. The flooring as recited in claim 26, having a Hexapod test pile height retention result of a
15 pile height retention of at least about 74%.
30. The flooring as recited in claim 26, having a Hexapod test overall appearance change result of at least 3.
- 20 31. The flooring as recited as recited in claim 1, further comprising a reinforcing material embedded in said lightweight cushion.
32. The flooring as recited as recited in claim 31, wherein said light weight cushion is about 0.04 – 0.12 inches thick.

33. The flooring as recited as recited in claim 1, wherein the low face weight carpet is at least one of tufted and bonded.

5 34. The flooring as recited as recited in claim 1, wherein the low face weight carpet is aesthetically pleasing.

35. The flooring as recited in claim 34, having good seamability.

36. The flooring as recited in claim 34, having a patterned monolithic design.

10 37. The flooring as recited in claim 34, having a uniformity of appearance between tiles.

38. The flooring as recited in claim 34, having a constant shade on tiles from the same dye lot.

15 39. The flooring as recited in claim 1, having at least one of durability, low crush, short pile, dense surface, and combinations thereof.

40. The flooring as recited as recited in claim 1, wherein the low face weight carpet is described in Figure 9.

20 41. The flooring as recited as recited in claim 1, wherein the low weight cushion is described in Figure 9.

42. The flooring as recited as recited in claim 1, wherein the low face weight carpet is made using a non-heatset single yarn.
43. The flooring as recited as recited in claim 42, wherein the single yarn has a denier of about 1000-1400.
44. The flooring as recited as recited in claim 29, wherein the low face weight carpet has a nonwoven backing and a latex coating.
45. The flooring as recited as recited in claim 1, wherein said low face weight carpet has a face weight of less than 20 oz/yd² and is jet dyed.
46. The flooring as recited in claim 1, wherein said flooring is a low weight cushioned backed carpet tile, comprising a low face weight primary carpet, a light weight cushion backing and a hot melt layer therebetween.
47. The flooring as recited in claim 1, wherein said flooring is a low weight cushion backed carpet composite comprising a low weight primary carpet and a thin cushion backing.
48. The flooring as recited in claim 1, wherein said flooring is a low weight cushion backed carpet tile, comprising a low weight primary carpet, a thin cushion backing and a hot melt layer between said primary carpet and thin cushion backing.

49. The flooring as recited in claim 1, wherein said flooring is a low weight carpet tile, comprising a layered structure of a low weight primary carpet precursor, latex pre-coat adhesive, hot melt adhesive, fiberglass, polyurethane foam, and felt.

5 50. The flooring as recited in claim 1, wherein said flooring is a low weight modular carpet tile, comprising a low face weight primary carpet, a hot melt layer including a reinforcing material, and a thin cushion layer having a nonwoven backing.

10 51. The flooring as recited in claim 1, wherein said flooring is a low weight modular carpet tile comprising a layered structure of a low weight primary carpet, hot melt adhesive, polyurethane foam, and felt.

15 52. The flooring as recited in claim 1, wherein said flooring is a low weight modular carpet tile comprising a layered structure of a low weight primary carpet, hot melt adhesive, fiberglass, and polyurethane foam.

20 53. The flooring as recited in claim 1, wherein said flooring is a low weight modular carpet tile comprising a layered structure of a low weight primary carpet, hot melt adhesive, fiberglass, and polyurethane foam,

54. The flooring as recited in claim 1, wherein said flooring is a low weight modular carpet tile comprising a layered structure of a low weight primary carpet, hot melt adhesive, and polyurethane foam.

55. The flooring as recited in claim 1, wherein said flooring is a low weight modular carpet tile comprising a layered structure of a low weight primary carpet, bitumen hot melt layer, fiberglass, polyurethane foam, and felt.

5 56. The flooring as recited in claim 1, wherein said flooring is a low weight modular carpet tile comprising a layered structure of a low weight primary carpet, a first layer of hot melt adhesive, fiberglass, a second layer of hot melt adhesive, polyurethane foam, and felt.

10 57. The flooring as recited in claim 1, wherein said flooring is a low weight modular carpet tile comprising a layered structure of a low weight primary carpet, a first layer of hot melt adhesive, a fiberglass, a second layer of hot melt adhesive, polyurethane foam, and felt.

15 58. The flooring as recited in claim 1, wherein said flooring is a low weight modular carpet tile comprising a layered structure of a low weight primary carpet precursor, fiberglass, latex pre-coat adhesive, hot melt adhesive, polyurethane foam, and felt.

20 59. A method of forming a low weight modular carpet tile comprising the steps of:
adhesively bonding a layer of glass reinforcement material to the base of a low weight primary carpet fabric having a face weight of less than or equal to about
15 oz/yd² to form a laminate composite,
placing a layer of wet polyurethane-foam forming composition into direct contact relation with a layer of nonwoven backing material to form a polyurethane foam layer of about 0.04 - 0.12 inches thick,

joining the polyurethane foam layer to the glass reinforcement material to form a low weight modular carpet composite, and cutting carpet tiles from the carpet composite.

5 60. The method as recited in claim 59, wherein said step of adhesively bonding the layer of glass reinforcement to the base of the primary carpet fabric utilizes a hot melt layer of about 36 – 50 oz/yd².

10 61. A method of forming a low weight modular carpet composite comprising the steps of :
adhesively bonding a layer of glass reinforcement material to the base of a low weight primary carpet fabric to form a laminate composite, and placing a layer of wet polyurethane-forming composition into direct contacting relation with the glass reinforcement material in a manner providing a polyurethane foam layer of about 0.04 –
15 0.12 inches thick.

20 62. The method as recited in claim 61, wherein the adhesively bonding of the glass reinforcement material to the base of the primary carpet fabric forms a hot melt layer of about 36 – 50 oz/yd².

63. A process for the formation of a floor carpet tile whereby the tile produced is suitable for disposition as discrete modular units across a flooring surface, the process comprising the steps of:

applying a layer of latex pre-coat adhesive to the back of a low weight primary carpet fabric,

applying a hot melt adhesive over the latex pre-coat,

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forming a layer of polyurethane foam on at least one of a woven or nonwoven backing material, and joining the polyurethane foam to the hot melt adhesive to form a low weight modular carpet composite, and

10 cutting carpet tiles from the carpet composite.

64. The method as recited in claim 63, wherein the low weight primary carpet has a face weight of less than or equal to about 15 oz/yd², the polyurethane foam layer is about 0.04 – 0.12 inches thick, and the hot melt layer is about 36 – 50 oz/yd².

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65. A low weight carpet tile produced by the process claim 59.

66. A low weight carpet composite produced by the process of claim 61.

20 67. A floor carpet tile produced by the process of claim 63.

68. A floor carpet tile produced by the process of claim 64.